

CLAIMS

What is claimed is:

1. A sprinkler for a fermenting system comprising:

a nozzle having an inlet opening and an outlet opening;

a support arm having a first end coupled to the nozzle and a second end coupled to a vane structure;

a plurality of vanes forming the vane structure rotatably coupled to the second end of the support arm having an axis of rotation substantially through the inlet opening, the plurality of vanes extending outward and radially from a center of the vane structure, and the support arm also shaped in a fashion to not interfere with rotation of the vane structure;

a dispersment structure attached to a top planar surface of the vane structure;

a notch in the side of the dispersment structure; and

a notch in the vane structure substantially aligned with the notch in the dispersment structure.

2. The sprinkler of claim 1, wherein the dispersment structure is a conically shaped structure.

3. The sprinkler of claim 1, wherein the vane structure is comprised of:

two longer vanes of substantially the same radial length; and

two shorter vanes of substantially the same radial length and which are both shorter than the longer vanes.

4. The sprinkler of claim 3, wherein each vane comprises:

a support arm, a planar surface of which is substantially perpendicular to an axis of rotation of the vane structure, the support arm having a straight edge and a curved edge that extend radially outward perpendicular to the axis of rotation meeting at a point defining an outward end of the vane; and

a face portion of the vane running along the edge of the curved portion of the vane and substantially perpendicular to the planar surface of the vane support arm and gradually increasing in height as the face portion extends toward the outward end of the vane support arm.

5. The sprinkler of claim 1 further comprising:
means for adjusting a distance between the vane structure and the outlet opening.

6. The sprinkler of claim 1 wherein the support arm is shaped in a fashion to position the second end of the support arm substantially centered below the outlet opening of the nozzle.

7. The sprinkler of claim 1 wherein an axis of rotation of the vane structure is through the center of the inlet opening of the nozzle.

8. The sprinkler of claim 1 wherein the notch in the vane structure is of the same shape as the notch in the dispersment structure, wherein vertical edges of the notch in the vane structure are aligned flush with vertical edges of the notch in the dispersment structure.

9. A fermenting system comprising:
a tank suitable for fermenting wine;
means for transporting wine within the tank to a nozzle having an inlet opening and an outlet opening, the nozzle centrally located at the top of the tank and operably attached to the transporting means;
a support arm having a first end coupled to the nozzle, the support and a second end of the support arm coupled to a vane structure;
a plurality of vanes forming the vane structure rotatably coupled to the second end of the support arm having an axis of rotation substantially through the inlet opening, the plurality of vanes extending outward and radially from a center of the vane structure, and the support arm also shaped in a fashion to not interfere with rotation of the vane structure;
a dispersment structure attached to a top planar surface of the vane structure;
a notch in the side of the dispersment structure;
and
a notch in the vane structure substantially aligned with the notch in the dispersment structure.

10. The fermenting system of claim 9, wherein the vane structure is comprised of:

two longer vanes of substantially the same radial length; and

two shorter vanes of substantially the same radial length and which are both shorter than the longer vanes.

11. The fermenting system of claim 10, wherein each vane comprises:

a support arm, a planar surface of which is substantially perpendicular to an axis of rotation of the vane structure, the support arm having a straight edge and a curved edge that extend radially outward perpendicular to the axis of rotation meeting at a point defining an outward end of the vane; and

a face portion of the vane running along the edge of the curved portion of the vane and substantially perpendicular to the planar surface of the vane support arm and gradually increasing in height as the face portion extends toward the outward end of the vane support arm.

12. The fermenting system of claim 9 further comprising:

means for adjusting a distance between the vane structure and the outlet opening.

13. The fermenting system of claim 9 wherein the dispersment structure is a conically shaped structure.

14. The sprinkler of claim 9 wherein the support arm is shaped in a fashion to position the second end of the support arm substantially centered below the outlet opening of the nozzle.

15. The sprinkler of claim 9 wherein an axis of rotation of the vane structure is through the center of the inlet opening of the nozzle.

16. The sprinkler of claim 9 wherein the notch in the vane structure is of the same shape as the notch in the dispersment structure, wherein vertical edges of the notch

in the vane structure are aligned flush with vertical edges of the notch in the dispersment structure.

17. A system for dispersing a fermenting liquid across a surface of a body of said liquid comprising:
an inlet having a central axis;
at least one surface for redirecting a flow of the fermenting liquid through the inlet from a substantially axial direction to a substantially radial direction; and
at least one surface for dispersing the flow of the fermenting liquid having been redirected both in a first region, relatively closer to said axis, and in a second region, relatively farther from said axis, as the flow of the fermenting liquid having been redirected falls by gravity in an axial direction.

18. The system of claim 17 further comprising:
an outlet;
a fluid conduit between said inlet and the outlet;
and
a support arm coupled between said fluid conduit and said at least one surface for redirecting.

19. The system of claim 17 further comprising:
an outlet;
wherein said inlet comprises a taper, wherein said inlet is larger than the outlet.

20. The system of Claim 17 further comprising a recirculating pump coupled to the inlet.

21. A sprinkler for a fermenting system comprising:

a nozzle having an inlet opening and an outlet opening;

a support arm having a first end attached to the nozzle, the support arm shaped in a fashion to position a second end of the support arm substantially centered below the outlet opening of the nozzle;

a plurality of vanes forming a vane structure rotatably attached to the second end of the support arm having an axis of rotation through the center of the inlet opening and outlet opening, the plurality of vanes extending outward and radially from a center of the vane structure, and the support arm also shaped in a fashion to not interfere with rotation of the vane structure; and

a conical shaped structure attached to a center of a top planar surface of the vane structure.

22. The sprinkler of claim 21, wherein the vane structure is comprised of:

two longer vanes of substantially the same radial length; and

two shorter vanes of substantially the same radial length and which are both shorter than the longer vanes.

23. The sprinkler of claim 22, wherein each vane comprises:

a support arm, a planar surface of which is substantially perpendicular to an axis of rotation of the vane structure, the support arm having a straight edge and a curved edge that extend radially outward perpendicular to the axis of rotation meeting at a point defining an outward end of the vane; and

a face portion of the vane running along the edge of the curved portion of the vane and substantially

perpendicular to the planar surface of the vane support arm and gradually increasing in height as the face portion extends toward the outward end of the vane support arm.

24. The sprinkler of claim 21 further comprising:
means for adjusting a distance between the vane structure and the outlet opening.

25. A fermenting system comprising:
a tank suitable for fermenting wine;
means for transporting wine within the tank to a nozzle having an inlet opening and an outlet opening, the nozzle centrally located at the top of the tank and operably attached to the transporting means;
a support arm having a first end attached to the nozzle, the support arm shaped in a fashion to position a second end of the support arm substantially centered below the outlet opening of the nozzle;
a plurality of vanes forming a vane structure rotatably attached to the second end of the support arm having an axis of rotation through the center of the inlet opening and outlet opening, the plurality of vanes extending outward and radially from a center of the vane structure, and the support arm also shaped in a fashion to not interfere with rotation of the vane structure; and
a conical shaped structure attached to a center of a top planar surface of the vane structure.

26. The fermenting system of claim 25, wherein the vane structure is comprised of:
two longer vanes of substantially the same radial length; and

two shorter vanes of substantially the same radial length and which are both shorter than the longer vanes.

27. The fermenting system of claim 26, wherein each vane comprises:

a support arm, a planar surface of which is substantially perpendicular to an axis of rotation of the vane structure, the support arm having a straight edge and a curved edge that extend radially outward perpendicular to the axis of rotation meeting at a point defining an outward end of the vane; and

a face portion of the vane running along the edge of the curved portion of the vane and substantially perpendicular to the planar surface of the vane support arm and gradually increasing in height as the face portion extends toward the outward end of the vane support arm.

28. The fermenting system of claim 25 further comprising:

means for adjusting a distance between the vane structure and the outlet opening.